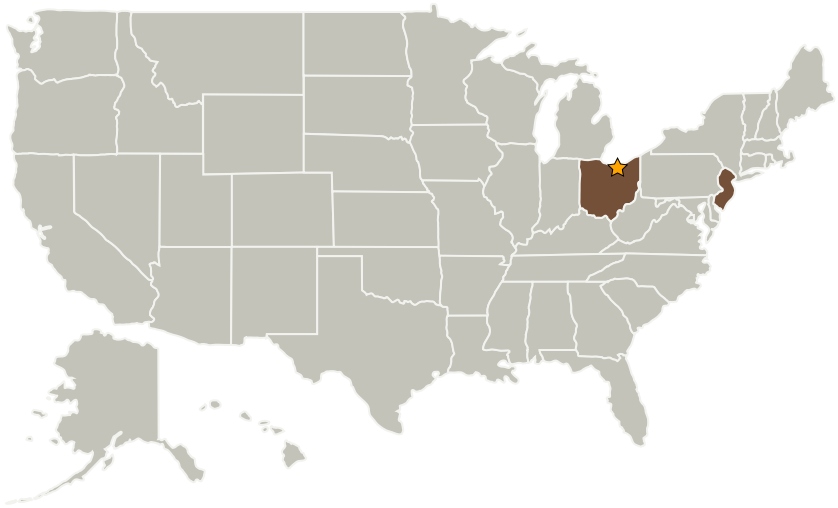
Wireless System for Continuous Cardiopulmonary Monitoring in a Space Environment, Phase I

Completed Technology Project (2004 - 2004)

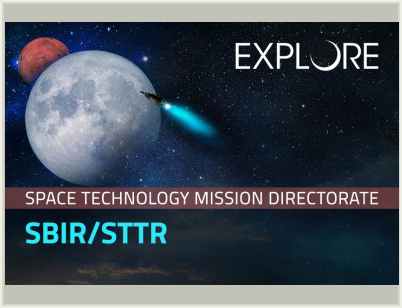
Project Introduction

We propose to develop the NJM Sense-It system based on small sensor tags, which include a cardiopulmonary MEMS sensor for measuring heartbeat and breath rates continuously. In addition, the proposed sensor system can be operated in extended bandwidth mode to measure detail cardiopulmonary phonic pattern upon control from the reader. The system operates within a central reader at 915 MHz with as many as 50 sensor tags. A single sensor worn as a Band Aid like adhesive or strapped tag on the astronaut monitors cardiopulmonary rates. Additional sensors are worn depending on the detail of phonocardiograph diagnosis data desired. This system is based on the mature technology of phonocardiography now thought at all medical school. This system has advantage that tag sensors measuring many additional physiological functions can be added at later date. The extended bandwidth cardiopulmonary data can be displayed locally or telemetered to earth stations and reviewed by clinicians in any situation as desired.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
New Jersey Microsystems, Inc	Supporting Organization	Industry	NEWARK, New Jersey



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations	
New Jersey	Ohio

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Dadi Setiadi

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.3 Human Health and Performance
    - TX06.3.4 Contact-less / Wearable Human Health and Performance Monitoring